

TRENDS AND CHALLENGES

The first step in determining how to achieve the vision for California's transportation system is an assessment and identification of the current and projected future trends and challenges under which the CTP's goals, policies, and strategies will be implemented.

Transportation is part of the social and economic fabric of California. It cannot be considered apart from population growth, changing demographics, travel behavior, safety, employment, housing, land use, the economy, technology, the environment, community values, individual opportunity, and funding. Many current trends, if continued, give rise to concerns regarding California's future in terms of environmental quality, economic prosperity, equity of individual opportunity, and society's ability to provide adequate services.

California is the most populous state in the nation, and its population and natural environment are the most diverse. While the State's growth and diversity adds to California's economic strength and vibrancy, they also confront policy-makers with a magnitude of social, economic, environmental, and transportation challenges. The following is an overview of trends expected to influence future transportation decisions and travel behavior:

ECONOMY Transportation investments have a direct and immediate impact on the economy. Transportation investments can facilitate economic development, job creation, income, and additional economic activities, from communities without an existing economic base to those communities whose economies are already robust. Based on estimates developed for California by the U.S. Department of Commerce, a \$1 billion investment in highway and transit improvements would directly and indirectly provide over 26,000 jobs, generating about \$870 million in personal income, and almost \$1.5 billion net increase in the Gross State Product.

The same amount of expenditure on highway repair, maintenance, and operational improvements would support 31,600 jobs in the State. This difference in job generation is due to the fact that maintenance and operational improvement projects are typically more labor-intensive and more of the jobs tend to originate and remain within the State. The full realization of the economic impacts of transportation investments, whether capacity increasing or rehabilitation, may take up to a decade, with the majority of impacts occurring in the first three to five years of the expenditure.

In addition to jobs, investments in transportation facilities generate benefits by lowering transportation costs. Lower transportation costs promote productivity growth, because more output can be produced with the same amount of input. Increased productivity generally implies greater net income and hence an improvement in society's economic well being. When projects produce transportation "costs savings" (such as reduced travel times, accident rates, and environmental impacts) that exceed the cost of the project, our economy becomes more productive and, consequently, more competitive.

The travel industry is a major component of California's economy and a primary industry in many local communities. Nearly 893,000 Californians were employed in tourism related industries

in 2004. During the same year, the tourism industry generated approximately \$82.5 billion in spending as it hosted an estimated 314 million domestic and 8 million international travelers.³ To continue this level of popularity, California must provide safe, reliable, interconnected transportation choices. Failure to invest in the system could result in the State's economic decline, rising unemployment, environmental degradation, and diminished quality of life.

GOODS MOVEMENT California's status as the world's sixth-largest economy is connected to our ability to transport people and goods within the State, as well as to other states and countries. California is the nation's leading global gateway for Pacific Rim trade. It is estimated that 45 percent of all U.S. continental, containerized cargo passes through California's ports (see **Map 1**). More than two million jobs nationwide are tied to these ports, including the loading and unloading of ocean vessels, rail and truck transport, warehousing and distribution, and administrative support functions. The goods movement industry supports one in seven California jobs (including many high-wage jobs); contributes more than \$200 billion per year to the State's economy and produces more than \$16 billion a year in tax revenues to State and local government.⁴

Further, the enormous market in California, and other western states served by California, provides profitable opportunities for carriers making this State their port of call. The Ports of Long Beach, Los Angeles, and Oakland are three of the four largest container ports in North America. The Ports of Long Beach and Los Angeles are planning to invest at least \$6 billion and the Port of Oakland will invest \$2 billion over the next 20 to 25 years on infrastructure development.⁵ Investments in transportation infrastructure that reduce the cost of moving freight are critical to California and the nation.

In reality, California's freight infrastructure is interdependent — an event in one sector can have dramatic consequences in another for example, in October 2004, a "Perfect Storm" of events combined to create the most significant slowdown of activity at the ports of Los Angeles and Long Beach since the labor lockout of Fall 2002. Explosive increases in import demand, shortages of available port labor, and terminal congestion (resulting in part from shortages in freight rail capacity and drayage haulers) resulted in up to 90 ships per day docked at port facilities or anchored offshore waiting to unload. In addition, 124 ships were diverted to other west coast ports or through the Panama Canal.⁶

Since the passage of the North American Free Trade Agreement, Mexico has replaced Japan as California's primary export market. The value of California's trade with Mexico was \$29.5 billion in 2003 (of which exports represented \$12.5 billion), 98 percent of which travels by truck. Significant resources have been targeted to address the congestion resulting from increases in trade with Mexico. However, additional infrastructure will be needed

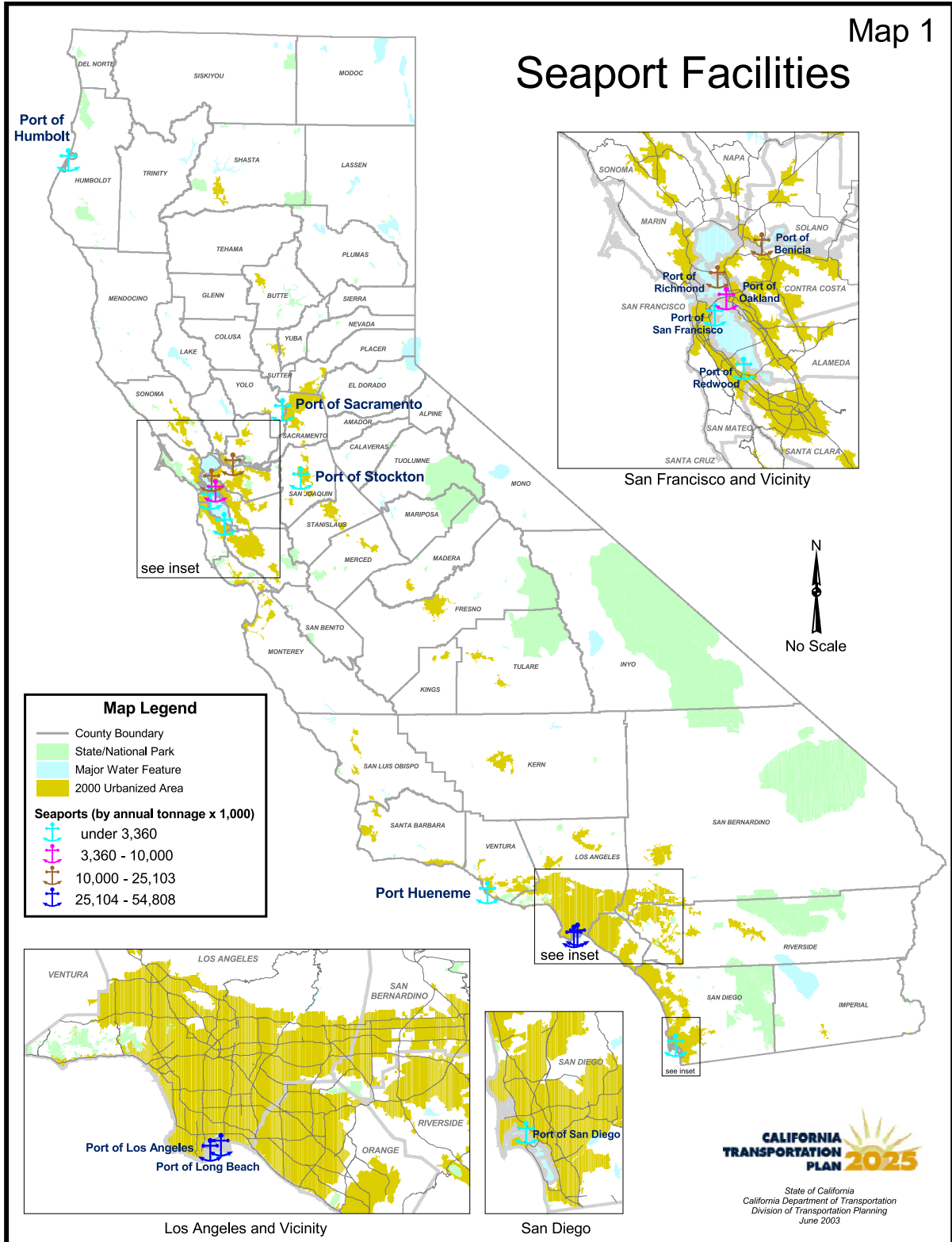
³ California Travel and Tourism Commission, "California Fast Facts 2005," August 2005.

⁴ California Business, Transportation and Housing Agency and California Environmental Protection Agency, Goods Movement Action Plan - Phase I: Foundations, September 2005.

⁵ California Department of Transportation, Global Gateway Development Program, January 2002.

⁶ Maritime Exchange of Southern California, Status Reports, January 2005.

Seaport Facilities



to accommodate an anticipated doubling of truck trips across the U.S.-Mexico border over the next 20 years.⁷

Nationally, air cargo is the fastest growing segment of freight transportation. In California, Los Angeles International Airport (LAX) was the nation's second busiest air freight gateway by value in 2003. Approximately 12 percent (\$64 billion) of the value of all U.S. international air freight moved through LAX.⁸

Railroads handle more than 40 percent (approximately 155 million tons during 2003) of the nation's intercity freight traffic (**see Map 2**).⁹ Rail intermodal service (the movement of truck trailers or containers by rail and at least one other mode of transportation, usually trucks) is an increasingly important segment of the U.S. freight rail industry, rising from just over three million trailers and containers in 1980 to more than nine million in 2002. Half of rail intermodal traffic consists of imports or exports, a reflection of the vital role railroads play in our nation's international trade. As manufacturing has become more global and as supply chains have become longer and more complex, rail intermodal traffic has come to play a critical role in making supply chains far more efficient for retailers and other firms and industries. As demand increases over the next two decades, railroads will face capacity, environmental, emergency access, safety, and other community-related problems.

Transporting freight by rail can reduce highway congestion and may decrease the need for major new highway investments. A single intermodal train can take up to 280 trucks (equivalent to more than 1,100 automobiles) off our highways. However, for this to occur continued development of inland container yards and intermodal facilities will be needed.

The volume of truck transport is enormous and will continue to grow, but at a slower rate than air and rail transport. In California, approximately 86 percent of freight is moved by trucks as the principal mode of transportation.¹⁰ Accommodating increased trucking goes beyond highway congestion. Routes providing access to rural areas, such as California's North Coast, older interchanges, local roadways, and truck parking facilities have not kept pace with the needs of the trucking industry.

Efforts by various organizations demonstrate the increasing seriousness of these issues. The Southern California Association of Governments (SCAG) is proposing truck-only lanes along Interstate 710, State Route 60, and Interstate 15, approximately 143 miles. According to their studies, dedicated lanes (separate truck and/or bus facilities) could reduce safety and operational conflicts. The cost for such separate facilities will be very high, but the long-term benefits may be significant. As population and commercial vehicle traffic increase, separate facilities in some form could be one of the solutions that will need to be pursued.¹¹

⁷ California Business, Transportation and Housing Agency and California Environmental Protection Agency, Goods Movement Action Plan - Phase I: Foundations, September 2005.

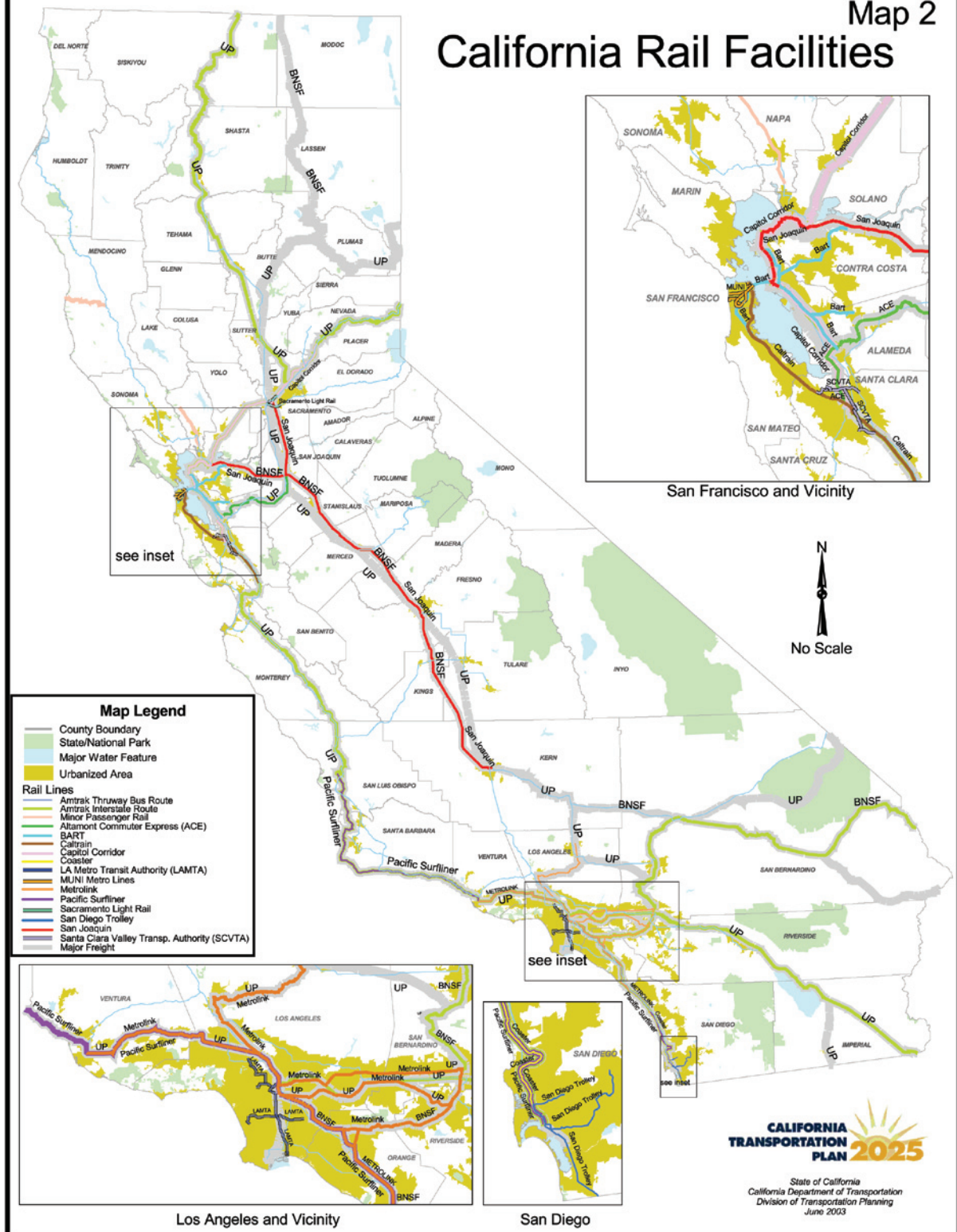
⁸ U.S. Department of Transportation, Bureau of Transportation Statistics, America's Transportation Gateways, 2004.

⁹ Association of American Railroads, February 2005.

¹⁰ Federal Highway Administration (FHWA), Office of Freight Management and Operations, Freight Analysis Framework, State Profile - California, November 2002, www.ops.fhwa.dot.gov/freight/.

¹¹ Southern California Association of Governments, "2004 Regional Transportation Plan," April 2004.

Map 2 California Rail Facilities



An understanding of the relationship between investments in transportation infrastructure and the performance of the freight system is critical to policy-makers, transportation users, and transportation providers. Transportation improvements result in lower transportation and inventory costs, and enhanced productivity, profits, growth, and competitiveness for businesses. To ensure California's pre-eminence as an economic powerhouse, we will need improved access to railways, seaports, highways, and airports, while ensuring the safety and security of ports of entry and cargo moving through the State.

EMPLOYMENT In the late 20th century, employment centers moved from central cities to the suburbs and edge cities. This shift in employment centers has made job access for inner-city residents — especially the urban poor — an important concern. The problem is made more complex by the fact that relatively few suburban jobs are well served by public transit and many inner urban residents are without cars.

Without intervention, it is expected that employment centers will continue to be in suburban centers and office parks and that employment growth will continue to be heavily concentrated in Southern California and the San Francisco Bay Area. These areas are already experiencing considerable traffic congestion. Transportation providers and employers will need to explore new forms of transit or telecommuting to provide alternatives to the single-occupancy vehicle.

TECHNOLOGY Transportation services, vehicles, and infrastructure are rapidly being changed by new technologies. Technology applications include: electronic payment of transit fares, tolls and parking; on-board diagnostics, information, and control systems that can assist the driver in maneuvering the vehicle and avoiding collisions; personal and vehicle-based "mayday" systems that can automatically notify authorities and provide vehicle location in event of an accident; smart infrastructure that monitors real-time usage and conditions to increase system efficiency; monitoring systems to enhance public transit and airport security; and logistics systems that route, monitor, and track shipments.

Technological changes will also influence the transportation fuels we use. For example, electric, hydrogen, or hybrid electric-petroleum vehicles are being introduced, substantially reducing emissions of greenhouse gases and other pollutants, and changing fleet fuel characteristics.

Advances in computer and communications technology will also influence how Californians work, educate, shop, and do business. Telecommuting, teleshopping, and video conferencing could reduce the need to travel, and have a profound impact on where Californians choose to live and work.

Technology presents unique challenges. Short lifecycles require flexibility and compressed timelines that are uncommon in transportation decision-making. Technologies must also be standardized and integrated statewide so that transportation services are consistent. Consumer devices, such as vehicle-based navigation systems, must work effectively everywhere to achieve market penetration levels needed for low-cost mass production.

The range of options and their impacts will continue to expand and may alter transportation systems in many ways as additional technologies are introduced. Whether and to what extent these technologies become a significant element of the transportation system will depend not only on the technological developments but also on public and private decisions about the technologies' desirability and usefulness.

EQUITY Equity is a key component of sustainability and the transportation vision of the CTP. Equity applies to access to the transportation system and services for the young, the elderly, persons with disabilities, and low-income households.

Transportation costs comprise the second greatest expense in Californian's household budget, second only to shelter, and greater than food and health care.¹² The Consumer Expenditure Survey of major metropolitan statistical areas indicates that residents of the Los Angeles area spend an average of approximately \$8,100 annually on transportation, while San Diegans spend just over \$9,100 and San Franciscans spend nearly \$9,500. This represents 18 percent, 21 percent and 17 percent, respectively, of the total household expenditures. The following example provides yearly transportation expenditures for the average San Diego household:

Vehicle purchase (net outlay)	\$4,800
Gasoline and motor oil	1,400
Insurance, maintenance, licensing, etc.	2,400
Transit	500
<hr/>	
Household total	\$9,100

The national average annual household expenditure for the same period was about \$7,600, or 19 percent. Only recently has transportation comprised such a large share of the family budget. In 1919, families spent only 3.1 percent of their total expenditures on transportation. By 1950, it had grown to 13.8 percent and in 1960 to 15.1 percent.

For lower income families, the expense of transportation poses a tremendous burden. Nationally, the poorest families (those earning less than \$13,900 after taxes) spend 39 percent of their take-home pay on transportation. A recent Bureau of Transportation Statistics study found that the working poor spend nearly 10 percent of their income on getting to and from work. This compares to just over two percent for individuals earning \$45,000 or more annually, and 3.9 percent for all Americans.¹³ For many low-income families, the high expense of owning a car may put home ownership out of reach.

¹² U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, www.bls.gov/cex/home.htm.

¹³ Surface Transportation Policy Project, "Transportation Costs and the American Dream," July 2003, www.transact.org.

A more extensive mix of flexible transportation choices and services would also improve accessibility for Californians with disabilities. However, people with disabilities are also vulnerable to “environmental barriers.” Barriers may include the physical design of buildings, streets, vehicles, and facilities. Often, something as simple as curbs or the lack of sidewalks can keep people with disabilities from interacting socially or being independent.

The transportation system will become more equitable to the extent that transportation planners promote traditional urban growth patterns that are more readily served by transit, provide more transportation choices, and offer incentives for Location Efficient Mortgages, like those now offered in Los Angeles and the San Francisco Bay Area.¹⁴

LAND USE IMPACTS ON TRANSPORTATION The way communities are planned and designed has a profound impact on our travel behavior. Over the past several decades, three predominant land use practices have influenced urban design:

- Lack of coordinated decision-making between cities and counties who make local land-use decisions, and regional agencies and the State who make regional and interregional transportation decisions.
- Single-use zoning ordinances isolating employment, shopping and services, and housing locations.
- Low-density growth planning resulting in considerable land consumption and sprawl-type urban form, requiring higher infrastructure investments due to distances served.

These land use practices have often resulted in increased traffic congestion and commute times, air pollution, greater reliance on fossil fuels, loss of habitat and open spaces, inequitable distribution of economic resources, and loss of a sense of community. These land use practices have contributed to the increase in vehicle miles traveled and vehicular non-work trips.

Existing community designs often do not include safe bicycle and pedestrian facilities, or destinations are too great in distance to be practicably accessed by walking or biking. Additionally, suburban street designs and low-density housing make communities difficult to effectively serve with transit.

Most older adults and baby boomers live in suburban areas, and are likely to retire in these surroundings. Frequently, the communities lack public transportation, have no sidewalks or poorly maintained sidewalks, and lack mixed-use development, meaning there are no stores or services nearby. Two of the major problems with walking as a form of transportation cited by older adults are poor sidewalks and destinations being located too far away.¹⁵

A major influence on community form over the past 20 years is a phenomenon often called “the fiscalization of land use.” This means a policy environment in which land use decisions

¹⁴ A Location Efficient Mortgage is a private sector mortgage product that provides extra home purchasing power by enhancing the ability of prospective homebuyers to purchase a home within a transit oriented development or urban infill area.

¹⁵ Center for Injury Prevention Policy and Practice, College of Health and Human Services, San Diego State University, [Traffic Safety Among Older Adults: Recommendations for California](#).

are made mostly or entirely based on fiscal considerations, rather than health, quality of life, and balance of communities. The roots of this phenomenon can be found in the unintended consequences of Proposition 13 of 1978 and other “tax revolt” initiatives.

A policy environment in which land use decisions are made mostly based on fiscal considerations has contributed to the lack of, and affordability of, housing. Affordable housing projects are often rejected because they cost more in fire, police, and other services than they produce in revenue from taxes. Communities that do accept housing, balance their budgets by imposing large up-front development fees, which only further increases the cost. Fiscalization of land use has also driven cities and counties to compete for retail developments, resulting in competitive “big-box,” strip mall, and auto mall development that generate sales tax revenue and typically result in the replacement of higher paying jobs with lower paying retail sector jobs.

All of these factors have contributed to the lack of affordable housing, low-density development, and longer commutes to job centers. The competitive retail development environment has resulted in abandoned city centers and derelict shopping malls in older suburban communities.

Reversing this trend will be a long and arduous task. Nevertheless, several regional governments have undertaken the challenge, including SCAG, the Association of Bay Area Governments (ABAG), Sacramento Area Council of Governments (SACOG), and San Diego Association of Governments (SANDAG). To maximize resources and minimize impacts on the State’s natural environment, land use decisions and transportation must be more closely linked in the future. The 58 counties and 477 cities will need to collaborate on a regional basis to plan, manage, and operate infrastructure to maximize resources and sustain their economy, environment, and quality of life.

HOUSING-EMPLOYMENT MISMATCH Currently, affordable housing supplies in the San Francisco Bay Area, Los Angeles Basin, and San Diego and Orange counties are not keeping pace with employment growth. This has resulted in long commutes and congestion on corridors linking affordable housing in the Central Valley and Inland Empire with employment centers in urban areas.

Among recent homebuyers in California’s metropolitan areas, the median commute time increased by five minutes between 1985 and 1995. First-time homebuyers (those most affected by rising house prices) were forced to live further away from employment centers, increasing the median commute time by 11 minutes during the same time period.¹⁶

SAN DIEGO’S CITY OF VILLAGES

San Diego’s City of Villages is part of a comprehensive regional plan to integrate land use, the transportation system, infrastructure, and public investment. The neo-traditional urban villages feature walkable street patterns, are close to parks, transit, shops and services, and have higher densities. The City of Villages strategy is intended to provide a positive response to growth and development trends, and an enlighten strategy for future development in San Diego.

¹⁶ California Department of Housing and Community Development, Raising the Roof: California Housing Development Projections and Constraints, 1997-2020, May 2000.

Nearly 10 percent of Californians commute more than one hour to reach their place of work, which is 2.5 percent higher than the national average. If the housing-employment mismatch continues, Californians will experience increasing transportation costs in the form of longer commutes, increased vehicle maintenance, fuel and insurance costs, and degradation of air quality. The public sector will incur additional maintenance and rehabilitation costs and the rising cost of increasing system capacity.

SHARED TRANSPORTATION DECISION-MAKING Transportation planning and programming in California is a complex process shared among multiple public and private entities. The process is regulated by federal and State statutes, federal and State environmental regulatory agencies, and influenced by organized interest groups and political and public will. The following gives an overview of the many partners at the transportation table. **(Appendix X shows the various roles and responsibilities in more detail.)**

In accordance with State and federal laws, the majority of transportation decisions are made at the regional level. In California, 75 percent of State and federal transportation revenues available for new capacity-increasing projects are allocated to the RTPAs. Most metropolitan regions in California have supplemented State and federal transportation funding with resources generated from local sales tax measures. Funds generated from sales tax measures can be used for roadway and transit projects on or off the State highway system.

The remaining 25 percent of resources available for new capacity-increasing projects are reserved for interregional projects selected by the Department. These resources are intended to support the movement of people and goods to, and through, California's metropolitan regions, as well as providing rural access. Large interregional projects in urban areas usually require cooperation and funding from multiple sources.

The CTC is responsible for programming and allocating funds for the construction of highway, passenger rail, and transit improvements throughout California. The CTC also advises the Administration regarding transportation policy.

The State supports three intercity passenger rail routes and contracts with Amtrak to operate the services. Amtrak also operates three long-distance passenger rail services that traverse California. Local and regional entities plan and operate commuter and urban rail services. The High-Speed Rail Authority is charged with planning and developing a California high-speed rail system.

U.S. freight railroads are privately owned and operated. California's two largest railroad companies, Burlington Northern and Santa Fe Railroad, and the Union Pacific Railroad provide inter- and intra-state freight service to industry, airports, and seaports. The freight railroads also enter into contracts with Amtrak, the Department, and local or regional entities to permit operation of rail passenger services on their lines.

Air and seaport operators and federal agencies set policy for seaports and airports. Privately owned trucking companies, intercity, regional and local bus companies, taxi services, and private vehicle owners operate on State, regionally, and locally owned and operated roadways.

All of these operators, owners, and decision-makers function with varying degrees of autonomy, making statewide transportation planning and coordination time-consuming and challenging. Transportation planners, providers, and decision-makers will need to find new ways to negotiate, collaborate, and share resources to reach common goals and ensure California's prosperity.

POPULATION The California Department of Finance projects the State's population will increase by approximately 10 million during the first two decades of the 21st century, to nearly 44 million and will reach 46 million by 2025. While international migration will continue to contribute to the State's growth, the largest source will be from Californians bearing children.¹⁷ The 2000 census revealed that for the first time since the Gold Rush, the majority of Californians were born in the State. Continued internal growth requires a transportation system that provides for Californians who are likely to remain in the State throughout their lives.

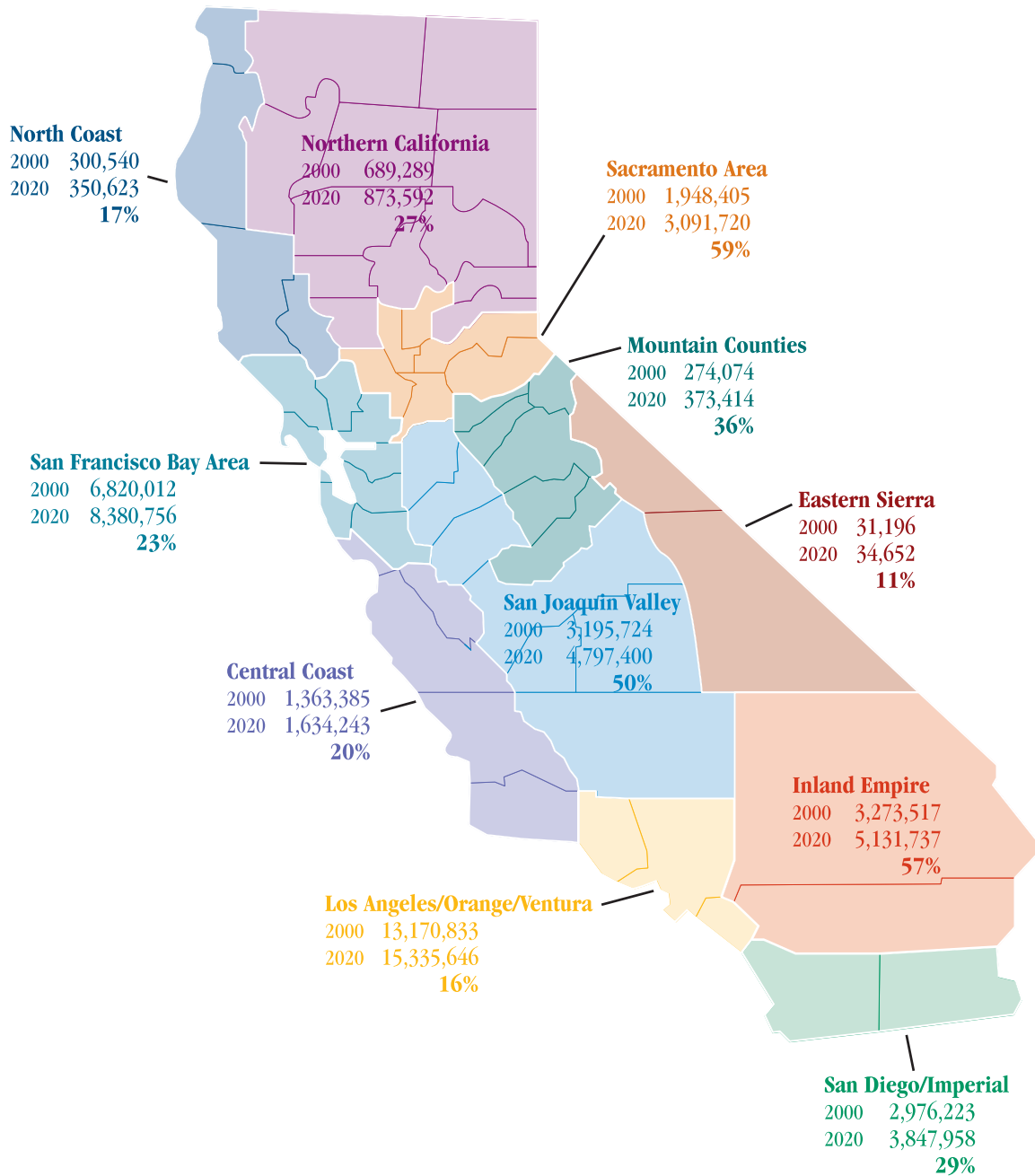
Figure 1 displays California's projected regional population in actual numbers and rate of growth. The Los Angeles Basin and the Inland Empire (San Bernardino and Riverside counties) will experience the most population growth. The San Francisco Bay Area will also face considerable growth adding nearly 1.6 million more residents. These regions are already experiencing substantial demands on their infrastructure and have limited developable land.

The San Joaquin Valley will also experience a high rate of growth. Much of the growth in the northern and southern parts of the San Joaquin Valley can be attributed to the lack of affordable housing in the Los Angeles Basin and the San Francisco Bay Area. Kern, San Joaquin, and Stanislaus counties provide housing for workers in adjacent metropolitan area employment centers. Due to the San Joaquin Valley's attractive supply of affordable land, it will continue to experience loss of prime agricultural land, lengthening commutes, increasing transportation demand, and greater encroachment pressures around airports, as well as the potential for further degradation in air quality.

¹⁷ Elizabeth Deakin and John Thomas, UC Berkeley Transportation Center, Trends and Projections for Consideration in California's Transportation Plan, May 2001.

FIGURE 1

Regional Population 2000 Census
Regional Projected 2020 Population
Regional Rate of Growth

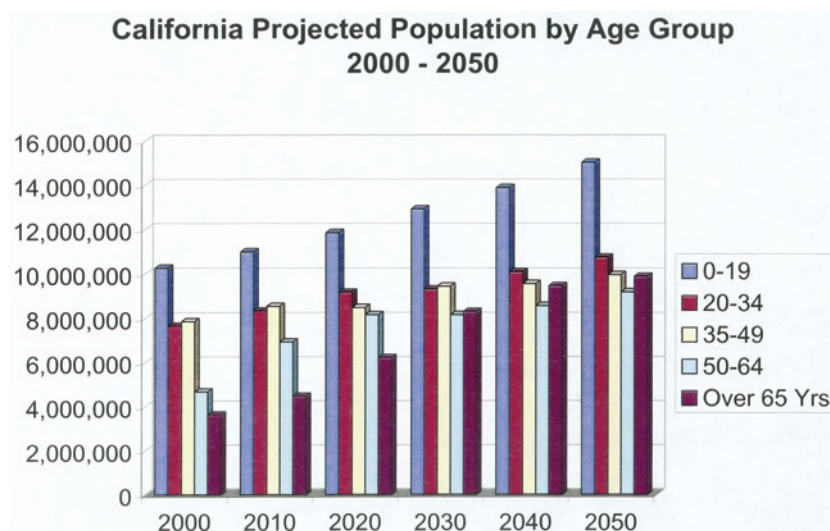


Source: California Department of Finance, Population Projections by Race/Ethnicity, Gender and Age for California and Its Counties 2000-2050, May 2004.

DEMOGRAPHIC CHANGES While California’s general population is expected to increase nearly 29 percent by 2020, the senior age group is projected to increase about 71 percent. Fueled by aging baby boomers, projections indicate in 2020, there will be about 2.6 million more Californians over the age of 65 today than there were in 2000. The baby boom generation has driven all their lives and will likely continue to drive more and longer than previous generations. This generation of older Californians is expected to live longer than previous generations and will need transportation choices to maintain a healthy, active, independent lifestyle.

FIGURE 2

California Populations by Age Group (2000-2050)



Source: California Department of Finance, *Population Projections by Race/Ethnicity, Gender and Age for California and Its Counties 2000-2050*, May 2004.

The over-85 age group is expected to increase 55 percent by 2020. Licensed drivers 85 years and older increased substantially from 1969 to 1995 — men from about 48 percent to 72 percent and women from 12 percent to 29 percent.¹⁸ However, some Californians in this age group do not or cannot drive. Decision-makers will need to consider the safety implications in designing and providing transportation choices and services for elderly, but active, Californians.

According to California Department of Finance projections, in 2020 there will be about 11.8 million Californians under the age of 20, or about 1.6 million more than in 2000. According to California Highway Patrol’s Annual Report of Fatal and Injury Motor Vehicles Traffic Collisions, children under the age of 15 accounted for nearly 30 percent of the 15,200 pedestrian victims in 2000. California’s youth will need safer options to access school, cultural, and recreational opportunities.

¹⁸ Ibid.

SAFE ROUTES TO SCHOOL

Under legislation enacted in 1999, \$50 million in federal and matching local transportation funds was made available for the Safe Routes to School Program. In 2001, the program was extended through December 31, 2004. The funds are used for safety projects including traffic signals and signs, sidewalks, crosswalks and bicycle lanes, and traffic calming and speed reduction projects. The Program is undertaken in collaboration with the Department, California Highway Patrol, local school-based associations and school officials.

In 2000, based on adjusted local housing costs, the adjusted poverty rate in California was about 15 percent, compared to 10.6 percent for the rest of the country. Those living at or below the poverty level occupy service and agricultural positions and are key to California's prosperity. They are located throughout the State and span all races and ethnicities.¹⁹ Providing safe, affordable transportation is key to improving economic opportunities and the quality of life for low-income individuals and families.

Currently, one of every four Californians was born in another country, a higher proportion than any other State.²⁰ Population estimates indicate that no race or ethnic group comprises a majority of the State's population. It is expected that the percentage of Latinos, Asians, and Pacific Islanders will increase, while non-Latino white and African American groups will decrease over the next 20 years. How these varied cultural groups choose to travel will influence transportation decisions over the life of this plan and beyond.

CHANGE IN TRAVEL BEHAVIOR The focus of transportation and congestion has traditionally been accessibility to employment sites, referred to as the commute trip. In recent years, however,

the number of non-work trips has overtaken the number of commuting trips. This has led to increased use of road networks for non-work trips, thus increasing congestion during off-peak periods. Non-work trips do not cluster around peak periods of the day and are not geographically predictable. Because of the unpredictable nature of non-work trips, privately owned vehicles often best serve them. **Figure 3**, on the following page, provides a sample distribution of weekday trips by type.

There are a number of potential causes for the increase in non-work trips, including the rise of consumer culture resulting in increasing shopping, entertainment, and recreational trips; changing ethnic and demographic lifestyle characteristics and choices; changing family structure; an increasing number of multi-income, multi-vehicle households; increasing household income; and changing urban form and community design.

Not all demographic groups travel alike. Recent immigrants rely on a wide range of alternative transportation modes, including casual shared transportation, unregulated jitney services (small buses with flexible routes and schedules), and bicycles. In Los Angeles, those relying on bicycles are often night workers who need to access work after normal transit service hours. Unfortunately, bicycle commuting in Los Angeles has proved dangerous, as adult bicycle fatalities doubled between 1998 and 1999.²¹

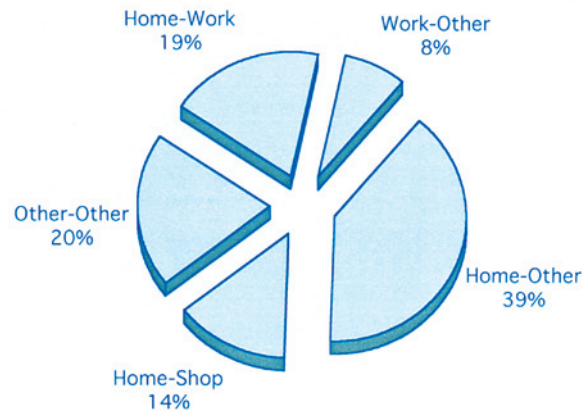
¹⁹ Abel Valenzuela, California Futures Conference, "Transportation Issues in Low-Income and Immigrant Communities," Los Angeles, California, June 21-22, 2001.

²⁰ Deborah Reed and Richard Van Sweringen, Public Policy Institute of California, Poverty in California, November 2001.

²¹ Valenzuela.

FIGURE 3

California 2000-01 Weekday Trip Type Distribution



Source: California Department of Transportation, 2000-2001 Statewide Household Travel Survey, 2002.

Californians born in other countries form a disproportionate share of transit riders. However, after ten years of residence, immigrants' travel behavior reflects the higher automobile use of the native-born population.²² Because of this trend, and since the majority of the projected population increase will be internal rather than immigrant; California could see a decrease in transit ridership and an increase in automobile travel among this demographic group.

The University of California, Berkeley and Los Angeles, studied the implications of California's demographic changes on travel behavior and transportation planning. **Appendix VI** has additional information on the California Transportation Trends and Demographics Study.

TRANSPORTATION SAFETY Although traffic fatality and injury rates have decreased since Congress passed the National Safety Act in 1966, transportation safety is still a major concern of system providers and users. In California, the death rate decreased from 5.0 fatalities per 100 million vehicle miles traveled in 1967 to 1.2 in 2000. This can largely be credited to safety belt usage, aggressive traffic safety programs, and improved vehicle and facility design. The reduced rate has resulted in estimated cost savings to California and its citizens of up to \$1.8 billion.²³

In spite of the substantial reductions, in 2000, California had 511,248 reported traffic collisions, resulting in 3,730 fatalities and 303,023 injuries. Thirty-two percent of the fatal crashes involved alcohol, and speed was identified as the primary collision factor in 28 percent of the fatalities. Of the licensed drivers in California, 22 percent were under 30 years of age; however, this same group comprised 35 percent of all drivers in fatal and injury collisions.

²² Elizabeth Deakin and Christopher Ferrell, *Trends and Projections for Consideration in California's Transportation Plan*, May 2001.

²³ California Highway Patrol, *The 2000 Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions*, 2000.

Older adults are very likely to be seriously injured in a crash, and their risk of dying from traffic-related injuries increases dramatically with age. Nationally, when driver fatality rates are calculated based on estimated annual travel, the highest rates are found among the youngest and oldest drivers. Compared with the fatality rates for drivers 25 through 69 years old, the fatality rate for drivers in the oldest group is nine times as high.²⁴

Included in California's 2000 injury and fatality traffic statistics were nearly 700 fatalities and 15,000 injuries among pedestrians, and 116 bicycle fatalities and over 12,000 bicycle injuries resulting from traffic incidents. Of these, children under the age of 15 accounted for nearly 30 percent of pedestrian and 27 percent of bicycle victims (killed and injured).²⁵

Safety issues affect public transit as well. In 1999, there were 4,212 transit-related collisions, resulting in 72 fatalities and 3,644 injuries reported in California. Also reported were 1,028 transit-related violent crimes, of which 45 percent were committed at a transit station or bus stop, 45 percent in a transit vehicle, and the remaining 10 percent elsewhere in a transit facility. Approximately 5,000 property crimes were reported at transit facilities, nearly 13 percent of which were vehicle thefts.²⁶ Considering the projected increases in population, vehicle miles traveled, and transportation demand, California will be challenged to reduce transportation-related fatalities, injuries, and property costs in all modes.

TRANSPORTATION SECURITY Until fairly recently, the United States has not been subject to ongoing terrorist campaigns. Tragically, the events of September 11, 2001, the 1995 derailment of a passenger train in Arizona by a group calling itself "Sons of the Gestapo," and the World Trade Center and the Oklahoma City federal building bombings in 1993 confirm that the terrorist threat in the United States is real. The nature and magnitude of the threat is uncertain.

In November 2001, the Transportation Security Administration (TSA) was established in the U.S. Department of Transportation through enactment of the Aviation and Transportation Security Act, and incorporated into the Homeland Security Agency in 2003. TSA's primary mission is to increase airport and airline security, and is responsible for screening every U.S. commercial airport. However, transportation system security goes beyond airport security to security of the State's transit systems, infrastructure such as bridges and tunnels, borders, and goods movement facilities.

Because of the State's Pacific Rim location, California can be seen as being especially vulnerable. California is favored with numerous surface, sea, and air gateways crucial to State and national economic vitality. Securing our borders and global gateways without stifling the movement of people and goods, or sacrificing personal privacy will continue to challenge the public and private sectors. Security plans and measures will need to be flexible, responsive for each mode and location, preventive, and include mitigation measures to minimize casualties, environmental impacts, and disruption.

²⁴ National Highway Traffic Safety Administration, National Center for Statistics & Analysis, Traffic Safety Facts, 2000.

²⁵ California Highway Patrol, *The 2000 Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions*, 2000.

²⁶ 2000 National Transit Database for California. Numbers exclude Amtrak-operated intercity and long-distance passenger rail service.

Transportation system security has been a state and national concern for years. However, the demand for increased, ongoing and more extensive security has resulted in a growing financial burden unanticipated before September 2001. The question of who will bear or share the burden remains unanswered.

ENVIRONMENTAL IMPACTS Air quality is often the first environmental impact that comes to mind when discussing transportation. In addition to transportation-related emissions from vehicle fuel combustion and resulting health and greenhouse gas impacts, transportation typically has the following negative effects:

- Water quality is degraded through stormwater runoff from roadways and parking facilities and impermeable surfaces that limit water filtration via soil percolation;
- Vegetation is harmed by direct removal as well as transportation-generated air and water pollutants;
- Wildlife habitat is fragmented, degraded, or destroyed to provide for transportation;
- Open space, wetlands, and prime agricultural land are consumed directly or indirectly by transportation;
- Communities, individuals, and wildlife are impacted by vehicular noise;
- Urban, suburban, and rural visual quality is degraded directly or indirectly by transportation facilities that are not context sensitive, and;
- The earth's atmosphere is warmed resulting in climate change and potential adverse impacts to public health, agriculture, forests, storm frequency and intensity, mountain snow pack, smog, and rising sea levels.

Environmental goals and values pose challenges to the operation and expansion of transportation facilities to meet growing demand. All of California's major metropolitan areas are in violation of either federal or State standards for ozone or particulate matter. Since the federal government can limit funding for transportation projects if a region's transportation plan is not consistent with the regional air quality plan, supporting the improvement of air quality may take precedence over many other concerns in regional transportation planning.

Meeting stormwater runoff requirements will be a major expense during the period covered by this plan and beyond. The *1999 Inventory of Ten-Year Funding Needs for California's Transportation Systems* estimated the cost associated with stormwater runoff from the State's highways to be as much as \$6 billion. In May 2001, the State Water Resources Control Board approved the Department's *Statewide Stormwater Management Plan*. The CTC responded by increasing funds in the State Highway Operation and Protection Program by approximately \$300 million over a five-year period to help address stormwater discharge. Additional resources will need to be identified, or redirected, to address this critical issue.

MERCED PARTNERSHIP IN PLANNING (PIP)

The Merced PIP is an innovative project of the Federal Highway Administration, United States Environmental Protection Agency, the Department, and Merced County Association of Governments to address environmental impacts early in the planning process. These agencies have committed resources to support effective and collaborative transportation and environmental planning processes that will result in a regional transportation plan that will leverage infrastructure investments, while more effectively addressing environmental impacts.

Because roads and railways are such prominent and permanent additions to the landscape, they have a profound effect on surrounding systems resulting in loss of wildlife habitat and impediments to wildlife movement. Solutions must be found to avoid sensitive habitat, reconnect fragmented habitat, and to provide passage for wildlife to help ensure the State's biodiversity.

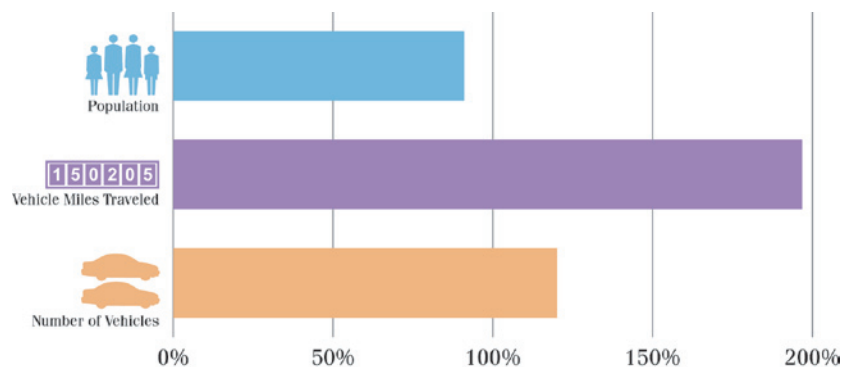
To advance environmental sustainability, transportation providers will need to improve mitigation of environmental impacts, reduce emissions, and impose construction limitations to avoid coastal or floodplain hazards. Additionally, they will need to develop new tools for projecting the consequences, costs, and benefits of new or expanded facilities and alternative strategies for meeting transportation demand, and form new collaborative partnerships to streamline the environmental review process without compromising the environment.

INCREASING DEMAND FOR TRANSPORTATION Congestion in the transportation system is worsening as demand outstrips the ability to provide additional capacity. Travel demand increases

are the result of population growth and more trips per capita (see **Figure 4**). According to the *California Travel Trends and Demographics Study* report, between 2000 and 2025, personal vehicle trips are expected to increase 38 percent, transit trips 72 percent, and walk/bicycle trips 77 percent.²⁷

FIGURE 4

Rate of Increase (1990-2000)



²⁷ Randall Crane and Abel Valenzuela, UC Los Angeles, and Chris Williamson, Solimar Associates, *California Travel Trends and Demographics Study*, December 2002.

According to the Federal Highway Administration nearly half of California's urban highways are currently congested. This is 65 percent greater than the national average. On-road vehicle miles traveled per year in California is projected to increase from approximately 307 billion miles in 2000 to 475 billion miles by 2020 — a 55 percent increase. The number of on-road vehicles is projected to reach almost 35 million, up from about 23 million in 2000.²⁸

Roadways are not the only mode experiencing increased demand. Many major metropolitan airports will soon reach capacity (**see Map 3**). The larger commercial airports in California's urbanized regions are experiencing increasing capacity shortfalls and ground access congestion. SCAG and the Bay Area's Metropolitan Transportation Commission (MTC)²⁹ project a significant increase in air passengers and cargo. SCAG's regional transportation plan anticipates air passengers doubling from 89 million to 167 million, and air cargo tripling from 2.6 to 9.5 million annual tons by 2025. While Los Angeles International Airport, Burbank, Long Beach, and John Wayne airports are constrained to their current capacities, substantial growth was forecasted for El Toro, Ontario, March Global Port and other outlying airports in the region. However, in November 2002, voters in Orange County rejected a proposal to convert El Toro Marine Corp Air Station to a civilian airport, resulting in a projected airport capacity shortfall in Southern California.

Trade volumes to and through California's ports are expected to double (or even triple) within the next twenty years, however current freight infrastructure (highways, seaports, airports, rail lines, pipelines) is adequate to address the expected increases. The *California Goods Movement Action Plan* includes \$48 billion in projects (both underway and needed) for highways, rail and seaports, however only a small fraction of this total is currently programmed.³⁰ Additional funds are also needed to address capacity constraints at California's airports.

Passenger demand at the three commercial airports in the San Francisco Bay Area is expected to increase from 56.5 million annual passengers in 1998, to 82.3 million in 2010, and doubling to 111.1 million annual passengers in 2020. It is anticipated that the Oakland and San Jose airports share will increase from the current 34 percent of passenger traffic to 45 percent by 2020.

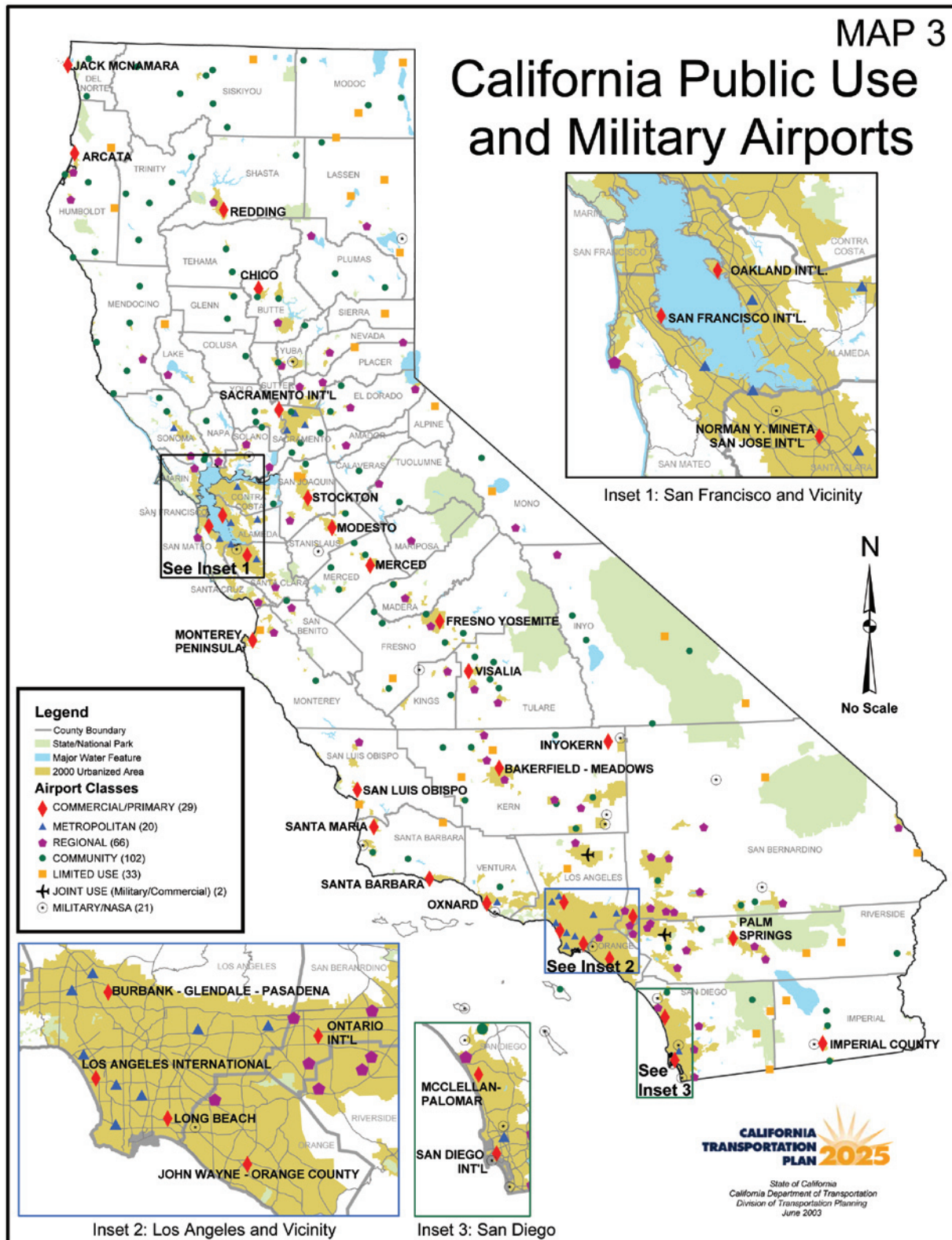
Increasing access demand at these as well as the State's other commercial airports will require increased airport capacity and improved ground access. However, extensive urban development around commercial service airports and environmental concerns are limiting capacity improvements, or making them prohibitively expensive. Additionally, as demand increases, general aviation aircraft will be increasingly forced from larger commercial airports to surrounding general aviation airports. Increased demand at general aviation airports could stimulate opposition in the surrounding communities.

²⁸ California Department of Transportation, Division of Transportation System Information, "Vehicle Stock, Travel and Fuel Forecast," November 2001.

²⁹ Southern California Association of Governments represents Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. The Metropolitan Transportation Commission represents the nine Bay Area Counties of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Napa, Solano, and Sonoma.

³⁰ California Business, Transportation and Housing Agency and California Environmental Protection Agency, *Goods Movement Action Plan - Phase I: Foundations*, September 2005.

California Public Use and Military Airports



Transit is also experiencing increased demand. Travel on California’s urban public transit systems, including bus, rail and demand responsive services, increased by nine percent between 1990 and 1997.³¹ Passenger Miles Traveled (PMT) is calculated based on total passenger miles of travel provided. A bus carrying 10 passengers, one mile would equal 10 PMT. **Figure 5** shows the passenger miles traveled by transit in California’s major metropolitan areas, and the rate of increase between 1990 and 1997.

FIGURE 5

Transit Passenger Miles Traveled

	1990 PMT (in millions)	1997 PMT (in millions)	Percent Increase
Los Angeles	2,103	2,257	7
Riverside-San Bernardino	48	116	142
Sacramento	98	124	26
San Diego	380	445	17
San Francisco-Oakland	2,030	2,051	1
San Jose	188	219	17

Source: The Road Information Program, California Urban Travel Trends from 1990-1997, May 2000.

Meanwhile, the physical capacity of the system is growing more slowly than in the past for a variety of reasons, including cost, community resistance, and environmental and social equity concerns. System operators are seeking to improve management and operations to increase system throughput. Transportation providers will need to develop new and more integrated approaches for demand management and system operations, as well as expanding transportation facilities to address increasing demand.

FUEL AND ENERGY USE California’s transportation sector consumes 50 percent of all energy used in the State and accounts for nearly 60 percent of all greenhouse gases from fossil fuels. Current trends of increasing travel and greater commuting distances, and the growing popularity of less fuel-efficient vehicles, indicate transportation fuel consumption in the State will increase by approximately 40 percent over the next 20 years. Additionally, projections also indicate that world petroleum production levels will peak and begin to decline by mid-century.²² Knowing that petroleum supplies will decline, yet not knowing when or how quickly, is a policy dilemma. California must begin transitioning from petroleum as its predominant source of transportation energy to an environmentally and economically sustainable source.

³¹ The Road Information Program, “California Urban Travel Trends from 1990-1997,” May 2000.